500.43447X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. BABA, et al

Serial No.: 10/766,802

Filed: January 30, 2004

For: METHOD, APPARATUS AND COMPUTER READABLE MEDIUM FOR MANAGING MULTIPLE SYSTEM

PETITION TO MAKE SPECIAL
UNDER 37 CFR §1.102(MPEP §708.02)

MS Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

March 18, 2005

Sir:

Applicants hereby petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). Pursuant to MPEP §708.02(VIII), Applicants state the following.

(A) This Petition is accompanied by the fee set forth in 37 CFR §1.17(h).

The Commissioner is hereby authorized to charge any additional payment due, or to credit any overpayment, to Deposit Account No. 50-1417.

(B) All claims are directed to a single invention.

If the Office determines that all claims are not directed to a single invention, Applicant will make an election without traverse as a prerequisite to the grant of special status.

(C) A pre-examination search has been conducted.

The search was directed towards a storage system. In particular, the search was directed towards a storage medium storing a program for making a living party computer having a disk management information buffer which stores physical device names of volumes in a disk device and volume identifiers by making correspondence between the physical device names and the volume identifiers, a party switchover method in a computer system having the living party computer, and a first (living party) computer connected to a memory unit including volume shared by the first computer and a second (standby party) computer.

The program stored on the storage medium includes a monitor section for detecting whether the execution of a replica corresponding to a volume has been completed in the disk device and a party switchover section responsive to the result of the detection in the monitor section to determine transmission, to a standby party computer, of a notice for informing the standby party computer that a volume identifier stored in the volume subjected to execution of the replica has been changed.

The program stored on the storage medium makes the standby party computer function as a party switchover section. The standby party computer holds a disk management information buffer that stores physical device names of volumes and volume identifiers by making a correspondence between the physical names and the volume identifiers and a replica status management table which manages a status concerning the presence or absence of volume

identifier. The standby computer functioning as a party switchover section executes a first process in which when the notice that the volume identifier stored in the volume has been changed is received from the living party computer, a first flag is stored in the replica status management table in correspondence with the physical device name of the volume, a second process in which the volume identifier stored in the volume is acquired in accordance with the decision as to whether the first flag is stored in the replica status management table in correspondence with the physical device name and the acquired volume identifier stored in the management information buffer in correspondence with the physical device name of the volume, and a third process in which when the second process has been completed, the first flag stored in the replica status management table in correspondence with the physical device name is erased.

The party switchover method operates in a computer system having the living party computer, a standby party computer for taking over processes of the living party computer and a disk device for storing volume shared by the living party computer and the standby computer.

The party switchover method includes a first step causing the living party computer to decide whether a volume identifier stored in a volume has been changed and a second step of causing the living party computer to determine, in accordance with the result of the decision, transmission to the standby party computer of a notice that the volume identifier has been changed.

The first computer namely, the living party computer, includes a monitor section for detecting that a volume identifier stored in a volume has been

changed and a party switchover section for determining, in accordance with the result of the decision, transmission to a second computer, namely the standby party computer, of a notice that the volume identifier has been changed.

The search of the above features was conducted in the following areas:

Class	Subclasses	Description
707/		**DATA PROCESSING: DATABASE AND FILE MANAGEMENT OR DATA STRUCTURES**
	204	.. Archiving or backup
711/		**ELECTRICAL COMPUTERS AND DIGITAL PROCESSING SYSTEMS: MEMORY**
	114	.... Arrayed (e.g., RAIDs)
	161	.. Archiving
	162	... Backup
714/		**ERROR DETECTION/CORRECTION AND FAULT DETECTION/RECOVERY**
	1	. Reliability and availability
	6	..... Redundant stored data accessed (e.g., duplicated data, error correction coded data, or other parity-type data)

Additionally, a computer database search was conducted on the USPTO systems EAST and WEST.

(D) The following is a list of the references deemed most closely related to the subject matter encompassed by the claims:

U.S. Patent Number	Inventors
6,557,089 B1	Reed et al.

U.S. Patent Application Publication No.	Inventor(s)
2004/0030730 A1	Arai et al.
2004/0243778 A1	Barrios et al.
2004/0260873 A1	Watanabe

Literature

"Migrated Data Backup Utility." *IBM Technical Disclosure Bulletin*, June 1994, pp. 505-508.

A copy of each of these references (as well as other references uncovered during the search) is enclosed in an accompanying IDS.

(E) It is submitted that the present invention is patentable over the references for the following reasons.

It is submitted that the cited references, whether considered alone or in combination, fail to teach or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to teach or suggest a first feature of the present invention as recited in the claims wherein the living party computer (first computer) detects whether the execution of a replica corresponding to a volume has been completed in a disk device of the living party computer, and a second feature of the present invention as recited in the claims wherein responsive to the result of the detection of whether the execution of a replica corresponding to a volume has been completed in the disk device, transmitting to a standby party computer (second computer) a notice for informing standby party computer that a volume identifier stored in the volume subject to the execution of the replica has been changed.

Each of the independent claims, namely claims 1, 2 and 8 recite at least the above described first and second features of the present invention as recited in the claims.

The references considered most closely related to the claimed invention are briefly discussed below:

Reed (U.S. Patent No. 6,557,089) provides for a Backup by ID-Suppressed Instant Virtual Copy then Physical Backup Copy with ID Reintroduced. Discussed is a method that may create a virtual duplicate of a source volume, minus the source's volume ID. A virtual target volume with a hidden representation of the source volume ID may be provided. A copy operation may then utilize the hidden representation of the source volume ID to reintroduce the source's volume ID into the backup copy. Even though this reference does not appear to show a method of maintaining copy status of volume identifiers, it does appear to show a method for encouraging fault tolerance if the subsystem were to fail right after the creation of a copy volume (see column 3, lines 6-10 and 12-14 and column 9, lines 27-34).

However, Reed fails to teach or suggest the above described first feature of the present invention recited in the claims wherein the living party computer (first computer) detects whether the execution of a replica corresponding to a volume has been completed in the disk device of the living party computer and a second feature of the present invention as recited in the claims wherein responsive to the result of the detection as to whether the execution of a replica corresponding to the volume has been completed in the disk device, transmitting to a standby party computer (second computer) a notice for informing the standby party computer that a volume identifier stored in the volume subject to the execution of the replica has been changed.

Arai (U.S. Patent Application Publication No. 2004/0030730) provides for a System and Method for Replicating Data. Disclosed is a representative panel for displaying pair status and history. Status display area 1532 may display information for a selected port, such as primary and secondary volume identifiers, pair status, and copy pace. A split volume pair panel 1550 may provide the capability to copy data from a primary volume to secondary volumes for pairs in a list of selected pairs (see figure 11D and paragraphs 54 and 55).

However, Arai fails to teach or suggest the above described first feature of the present invention recited in the claims wherein the living party computer (first computer) detects whether the execution of a replica corresponding to a volume has been completed in the disk device of the living party computer and a second feature of the present invention as recited in the claims wherein responsive to the result of the detection as to whether the execution of a replica corresponding to the volume has been completed in the disk device, transmitting to a standby party computer (second computer) a notice for informing the standby party computer that a volume identifier stored in the volume subject to the execution of the replica has been changed.

Barrios (U.S. Patent Application Publication No. 2004/0243778) provides for a Representing Status Information in a Storage Subsystem Copy services Product. Discussed is a user interface 150, which may communicate with storage server 100 to obtain information regarding the storage resources and status of copy operations. The processing resources in storage server 100 may continuously monitor the activities of various storage resources, including

whether a resource has been designated as a source or target resource, which resources are paired in copy relationship, and whether data is currently being read from or to a resource (see figure 5 and paragraphs 21 and 22).

However, Barrios fails to teach or suggest the above described first feature of the present invention recited in the claims wherein the living party computer (first computer) detects whether the execution of a replica corresponding to a volume has been completed in the disk device of the living party computer and a second feature of the present invention as recited in the claims wherein responsive to the result of the detection as to whether the execution of a replica corresponding to the volume has been completed in the disk device, transmitting to a standby party computer (second computer) a notice for informing the standby party computer that a volume identifier stored in the volume subject to the execution of the replica has been changed.

Watanabe (U.S. Patent Application Publication No. 2004/0260873) provides for a Method and Apparatus for Managing Replication Volumes. Discussed is replication manager 105b, which may store a remote copy of volume 105c and status indicators showing the status of the replication. A status map appears to enable single state reference to combined states of storage groups, such as remote and local copy volumes, and an identifier for the apparent "best" source of data that should be attached for reliable data access. Different states in the status map appear to represent synchronized, re-synchronized, etc, states (see figures 1 and 12 and paragraphs 58 and 116).

However, Watanabe fails to teach or suggest the above described first feature of the present invention recited in the claims wherein the living party computer (first computer) detects whether the execution of a replica corresponding to a volume has been completed in the disk device of the living party computer and a second feature of the present invention as recited in the claims wherein responsive to the result of the detection as to whether the execution of a replica corresponding to the volume has been completed in the disk device, transmitting to a standby party computer (second computer) a notice for informing the standby party computer that a volume identifier stored in the volume subject to the execution of the replica has been changed.

The non-patent literature, Migrated Data Backup Utility, discloses a method requiring some unique identifier in the primary file system which can be used to represent the migrated data. Various levels of locking of primary and migration level may be provided in order to ensure synchronization. Primary file attributes for each migrated file using backup product during backup may be saved. These attributes, along with information correlating primary files with their associated migrated data, may be saved in a table.

However, the non-patent literature, Migrated Data Backup Utility fails to teach or suggest the above described first feature of the present invention recited in the claims wherein the living party computer (first computer) detects whether the execution of a replica corresponding to a volume has been completed in the disk device of the living party computer and a second feature of the present invention as recited in the claims wherein responsive to the result of the detection

as to whether the execution of a replica corresponding to the volume has been completed in the disk device, transmitting to a standby party computer (second computer) a notice for informing the standby party computer that a volume identifier stored in the volume subject to the execution of the replica has been changed.

Therefore, since the references fail to teach or suggest the first and second features of the present invention as recited in the claims, it is submitted that all of the claims are patentable over the cited references.

(F) Conclusion

Applicant has conducted what it believes to be a reasonable search, but makes no representation that "better" or more relevant prior art does not exist. The United States Patent and Trademark Office is urged to conduct its own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited herein and any other prior art that the United States Patent and Trademark Office may locate in its own independent search. Further, while Applicant has identified in good faith certain portions of each of the references listed herein in order to provide the requisite detailed discussion of how the claimed subject matter is patentable over the references, the United States Patent and Trademark Office should not limit its review to the identified portions but rather, is urged to review and consider the entirety of each reference, and not to rely solely on the identified portions when examining this application.

In view of the foregoing, Applicant requests that this Petition to Make Special be granted and that the application undergo the accelerated examination procedure set forth in MPEP 708.02 VIII.

(G) Fee (37 C.F.R. 1.17(i))

The fee required by 37 C.F.R. § 1.17(i) is to be paid by:

[X] the Credit Card Payment Form (attached) for $130.00.

[ ] charging Account _____ the sum of $130.00.

A duplicate of this petition is attached.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (500.43447X00).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.

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